

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : Katrina Schmidt, et al. :  
Serial No. : 10/644,450 : Group: 1796  
Atty. No. : 12166 : Examiner: Cooney, John M.  
Filed : August 20, 2003 :  
Title : FORMULATED RESIN COMPONENT FOR USE IN A  
SPRAY-IN -PLACE FOAM SYSTEM TO PRODUCE LOW  
DENSITY POLYURETHANE FOAM

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**REPLY BRIEF**

**Mail Stop Appeal Brief - Patents**  
**Commissioner of Patents**  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Dear Sir:

In response to the Examiner's Answer dated July 10, 2008, Applicant now submits a Reply Brief in accordance with 37 C.F.R. §41.41.

**Status of Claims**

Claims 26, 28, 29, 31, 34, 36-39, 41, 42, and 44 remain in this application with claims 26 and 39 in independent form. Claims 1-25, 27, 30, 32-33, 35, 40, 43, and 45-46 have been cancelled.

Claims 26, 28, 29, 31, 34, 36-39, 41, 42, and 44 stand finally rejected under 35 U.S.C. §103(a) and are the subject of this appeal.

**Grounds of Rejection to be Reviewed on Appeal**

Whether claims 26, 28, 29, 31, 34, 36-39, 41, 42, and 44 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Spitzer et al. (United States Patent No. 5,340,900).

**Argument**

It is respectfully submitted that the Examiner has failed to consider the claimed invention as a whole as set forth in MPEP 2141.02. The Examiner determined the differences between the prior art and the claims and focused on the differences themselves, instead of asking whether the invention as a whole would have been obvious as required under 35 U.S.C. 103. This is exactly the type of hindsight reasoning the Court in *KSR* sought to avoid.

MPEP 2141 makes clear that to reach a proper determination under 35 U.S.C. 103, the Examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the Examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of Applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon Applicant's disclosure is often difficult to avoid due to the very nature of the examination process.

In the subject application, claims 26 and 39 claim spray-in-place polyurethane foam dispensed from spraying systems that spray two components as a liquid into a desired space and the components begin to rise, cream, and gel forming the polyurethane foam. It is during this process that the subject invention has reduced dripping of the components, which is attributable to *the isocyanate index and the volumetric ratio*, which are specifically claimed. In other words, the claimed isocyanate index of from 25 to 60 provides the unexpected results of reduced and/or eliminated dripping as described in paragraphs [0027] and [0028] of the specification as

originally filed. It was discovered that the claimed composition reacted at an isocyanate index of from 25 to 60 permits unreacted hydroxyl groups to remain in the foam to reduce and/or eliminate dripping when the polyurethane foam is burned. The reduced dripping has not previously been possible with polyurethane foams that have a lower density when sprayed at volumetric ratios of 1:1.

In contrast, Spitzer et al. discloses utilizing an isocyanate number, or index, in a customary amount. Relative to this customary amount, Spitzer et al. specifically states:

The reaction mixtures according to the invention comprise the polyisocyanate in the customary amount, in general corresponding to an isocyanate number (quotient of the number of isocyanate groups and the number of groups which can react with isocyanate groups in the reaction mixture, multiplied by 100) of between **70 and 130, preferably corresponding to an isocyanate number of between 90 and 110.** A primary amino group here again corresponds to a hydroxyl group. (See col. 7, lines 55-63). [emphasis added]

Even though the Examiner interprets the above paragraph as suggesting other *customary* amounts, Applicants respectfully submit that only the *customary* amounts disclosed are between 70 and 130. The customary amount is not 25 to 60 as claimed. Spitzer et al. goes even further, i.e., *teaches away*, from a lower range by disclosing the preferred range is 90 to 110. Additionally, none of the examples of Spitzer et al. are beyond the customary amount disclosed. The Examiner's suggestion that customary amounts may include an isocyanate index of from 25 to 60 based on Spitzer et al. has not factual support in the record.

Viewing Spitzer et al. as whole would clearly disclose to one of ordinary skill in the art that Spitzer et al. merely provides polyurethane shaped articles removable from molds to have improved machining capabilities. One of ordinary skill in the art would not look to Spitzer et al. for a polyurethane foam spraying system producing a polyurethane foam as an insulating

material because Spitzer et al. is directed toward the machining of shaped articles formed in mold. Thus, one of ordinary skill in the art, upon reviewing Spitzer et al. as a whole, would not be motivated to modify Spitzer et al. in the manner suggested by the Examiner.

While not exclusive, MPEP 2143 identifies seven rationales that may support a conclusion of obviousness. The Examiner has not attempted to utilize any of these rationales in reaching the conclusion of obviousness. Instead, the Examiner erroneously reaches the conclusion using such phrases as “fair suggestions” and “well studied”.

It is unclear if the Examiner is taking “Official Notice” of the comments on Pages 5-6 of the Examiner’s Answer regarding “fair suggestions” and “well studied”. In view of the prior art of record, it is unclear where the Examiner obtains such “fair suggestions” and the Examiner has not provided any references or citations for what is “well studied”. As stated in MPEP 2144.03, official notice without document evidence to support an examiner’s conclusion is permissible in only some circumstances. The Examiner fails to identify whether the Examiner is taking “Official Notice” of these facts and why it is necessary in this circumstance to do so. If the Examiner is relying on his own personal knowledge, in accordance with MPEP 2144.03(C), the Examiner must provide an affidavit or declaration setting forth specific factual statements to support the findings.

MPEP 2143.01(IV) provides that the mere statement that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient to establish *prima facie obviousness*. In addition to relying on the phrases “well studied” and “fair suggestions”, the Examiner merely states that physical properties such as “mechanical strength” and “cracking resistance”, set forth on pages 6-7 of the Examiner’s Answers, would lead one of ordinary skill

in the art to use lower isocyanate indices. It is questionable whether such physical properties would result in each and every case as suggested when reacted at lower isocyanate indices.

It is unforeseeable how the Examiner's sole determination that better elongation results from lower isocyanates indices would fairly suggest to one of ordinary skill in the art that the polyurethane foam sprayed at an isocyanate index of 25 to 60 would have reduced and/or eliminated dripping. In other words, the reduced and/or eliminated dripping as a result of the lower isocyanate index would not be considered predictable by one of ordinary skill in the art. Further, the mere statements that "mechanical strength" and "cracking resistance" would lead to use a lower isocyanate index have no basis whatsoever in the prior art of record and the Examiner has not provided any affidavits or declarations. The discovery that this particular claimed invention provides unexpected results of improved dripping and burning characteristics as a result of the claimed ranges of isocyanate index is described first in paragraph [0027] of the specification as originally filed.

The Examiner even admits on page 7 that that "an ordinary practitioner may be hindered in relying on lowered index values". Yet, the Examiner reaches his own unsupported conclusion that balancing and optimizing these known effects would only involve routine experimentation from the teachings of Spitzer et al. Again, the Examiner improperly reaches these conclusions by not examining the invention as a whole and by using hindsight. The specification as originally filed includes examples illustrating these advantages of the subject invention.

Applicant also maintains its prior arguments filed in the Appeal Brief on May 19, 2008 and believes these arguments are persuasive for the reasons set forth therein.

**Closing**

For the reasons set forth above, the rejections of Claims 26, 28, 29, 31, 34, 36-39, 41, 42, and 44 under 35 U.S.C. §103(a) must be reversed.

Respectfully submitted,  
**HOWARD & HOWARD ATTORNEYS, P.C.**

**September 10, 2008**  
Date

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